

CLAIMS

1-12. (Canceled)

13. (New) An integrated circuit, comprising:

first and second power rails;

a first voltage regulator coupled to electrically bias the first power rail with respect to the second power rail;

a plurality of circuit modules, each coupled between the first and second power rails to draw power therefrom; and

a plurality of voltage meters, each coupled to measure a voltage level received from the first power rail by a respective one of the circuit modules, wherein a voltage output of the first voltage regulator applied to the first power rail is controlled based on the voltage levels measured by the voltage meters so that each of circuit modules receives a respective desired voltage level from the first power rail.

14. (New) The integrated circuit of claim 13, wherein the voltage levels received from the first power rail by at least two of the circuit modules differ due to a voltage drop along the first power rail.

15. (New) The integrated circuit of claim 13, further comprising a power manager operatively coupled to the first voltage regulator and to the two or more voltage meters, wherein the power manager is adapted to:

receive voltage-level measurements from the two or more voltage meters; and

control the voltage output of the first voltage regulator based on the voltage-level measurements.

16. (New) The integrated circuit of claim 15, wherein the voltage-level measurements are received in digital form over a digital bus.

17. (New) The integrated circuit of claim 13, wherein the voltage output of the first voltage regulator is controlled so that, for each of the circuit modules, the voltage level received from the first power rail exceeds a design-voltage threshold.

18. (New) The integrated circuit of claim 13, wherein the voltage output of the first voltage regulator is controlled to minimize, for each of the circuit modules, a square of a difference between the voltage level received from the first power rail and a desired voltage level.

19. (New) The integrated circuit of claim 13, further comprising at least a second voltage regulator coupled to electrically bias the first power rail with respect to the second power rail, wherein a voltage output of the second voltage regulator applied to the first power rail is controlled based on the voltage levels measured by the voltage meters so that each of the circuit modules receives the respective desired voltage level from the first power rail.

20. (New) The integrated circuit of claim 19, further comprising:
a first diode coupled between the first voltage regulator and the first power rail; and
a second diode coupled between the second voltage regulator and the first power rail,
wherein:

the voltage output of the first voltage regulator is applied to the first power rail through the first diode; and

the voltage output of the second voltage regulator is applied to the first power rail through the second diode.

21. (New) The integrated circuit of claim 19, wherein the second voltage regulator is turned on and off to maintain the respective desired voltage levels for the plurality of circuit modules.

22. (New) The integrated circuit of claim 13, further comprising a pin to which the voltage levels measured by the voltage meters are routed to enable external sampling of the voltage levels received by the circuit modules from the first power rail.

23. (New) A method of supplying power to an integrated circuit, the method comprising:

electrically biasing a first power rail of the integrated circuit with respect to a second power rail of the integrated circuit using a first voltage regulator, wherein the integrated circuit comprises a plurality of circuit modules, each coupled between the first and second power rails to draw power therefrom;

for each of the circuit modules, measuring a voltage level received by the circuit module from the first power rail; and

controlling a voltage output of the first voltage regulator applied to the first power rail based on the measured voltage levels so that each of the circuit modules receives a respective desired voltage level from the first power rail.

24. (New) The method of claim 23, wherein the voltage levels received from the first power rail by at least two of the circuit modules differ due to a voltage drop along the first power rail.

25. (New) The method of claim 23, wherein the integrated circuit further comprises a power manager operatively coupled to the first voltage regulator and to the two or more voltage meters, wherein the power manager is adapted to:

receive voltage-level measurements from the two or more voltage meters; and
control the voltage output of the first voltage regulator based on the voltage-level measurements.

26. (New) The method of claim 25, wherein the voltage-level measurements are received in digital form over a digital bus.

27. (New) The method of claim 23, wherein the voltage output of the first voltage regulator is controlled so that, for each of the circuit modules, the voltage level received from the first power rail exceeds a design-voltage threshold.

28. (New) The method of claim 23, wherein the voltage output of the first voltage regulator is controlled to minimize, for each of the circuit modules, a square of a difference between the voltage level received from the first power rail and a desired voltage level.

29. (New) The method of claim 23, wherein:
the integrated circuit further comprises at least a second voltage regulator coupled to electrically bias the first power rail with respect to the second power rail; and
the method further comprises controlling a voltage output of the second voltage regulator applied to the first power rail based on the measured voltage levels so that each of the circuit modules receives the respective desired voltage level from the first power rail.

30. (New) The method of claim 29, wherein:
the integrated circuit further comprises:
a first diode coupled between the first voltage regulator and the first power rail;
and
a second diode coupled between the second voltage regulator and the first power rail; and
the method further comprises:
applying the voltage output of the first voltage regulator to the first power rail through the first diode; and
applying the voltage output of the second voltage regulator to the first power rail through the second diode.

31. (New) The method of claim 29, further comprising turning on and off the second voltage regulator to maintain the respective desired voltage levels for the plurality of circuit modules.

32. (New) The method of claim 23, wherein:
the integrated circuit further comprises a pin operatively coupled to the voltage meters;
and

the method further comprises routing the voltage levels measured by the voltage meters to the pin to enable external sampling of the voltage levels received by the circuit modules from the first power rail.